

**ABSTRACT**

The present invention leverages analysis methods, such as expected value of information techniques, rate-based techniques, and random selection technique, to provide a fusion of low-level streams of input data (*e.g.*, raw data) from multiple sources to facilitate in inferring human-centric notions of context while reducing computational resource burdens. In one instance of the present invention, the method utilizes real-time computations of expected value of information in a greedy, one-step look ahead approach to compute a next best set of observations to make at each step, producing “EVI based-perception.” By utilizing dynamically determined input data, the present invention provides utility-directed information gathering to enable a significant reduction in system resources. Thus, of the possible input combinations, the EVI-based system can automatically determine which sources are required for real-time computation relating to a particular context.